

REMARKS

Claims 1, 3, 4 and 6-11 are pending in this application. By this Amendment, claim 11 is added. Claims 2 and 5 were previously canceled. Claims 9 and 10 have previously been withdrawn from further consideration. Support for new claim 11 can be found, for example, in the specification at page 15, lines 9-10. No new matter is added.

The courtesies extended to Applicant's representative by Examiner Matzek at the interview held January 9, 2009, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below, which constitute Applicant's separate record of the interview.

In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

I. Rejections Under 35 U.S.C. §103

A. Ueda and Miyake

The Office Action rejects claims 1, 4 and 6-8 under 35 U.S.C. §103(a) over European Patent No. 0 998 182 to Ueda et al. ("Ueda") in view of Japanese Patent No. 62-107039 to Miyake et al. ("Miyake"). Applicant respectfully traverses the rejection.

Claim 1 recites, *inter alia*, an electromagnetic shielding sheet comprising: a transparent base; a mesh metal layer; a blackened layer formed on one of the surfaces of the metal layer; and a density-intensifying layer formed on the blackened layer, wherein the blackened layer is formed of Cu-Co alloy particles adhering to the metal layer, the density-intensifying layer is a chromated layer formed by a chromate treatment and so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer. Ueda and Miyake, individually or in combination, fail to teach or suggest such an electromagnetic shielding sheet.

The Office Action, on page 2, asserts that Ueda discloses an electromagnetic shield plate comprising a transparent substrate, a conductive grid of metal particles, and a metallic layer of copper, wherein the metallic layer structure may comprise multiple layers and the uppermost layer is preferably blackened to suppress the reflection of visible light. The Office Action further asserts that Ueda discloses that the metallic layer structure may be chromate plated and, as was explained during the personal interview, this chromate plating provides the claimed density-intensifying layer formed on the blackened layer. The Office Action cites paragraphs [0033] and [0034] of Ueda in support of these assertions.

However, Applicant respectfully asserts that the chromate plating disclosed in Ueda does not teach or suggest the claimed density-intensifying layer. Ueda merely discloses that a metallic layer may cover the geometric pattern formed from a conductive paste, and that the metallic layer may have a single layer structure or a multiple layer structure. Ueda, paragraphs [0032] and [0033]. Ueda also discloses that “the uppermost layer is preferably a black colored layer which can suppress the reflection of visible light.” Ueda, paragraph [0033] (emphasis added). Thus, Ueda discloses that the uppermost layer of a multiple-layer-structure metallic layer is a blackened layer. Ueda does not teach or suggest that a density-intensifying layer can or should be formed on the blackened layer at least because Ueda does not disclose any layers, metallic or otherwise, that are to be added to the electromagnetic shielding sheet after the blackened layer of the metallic layer is formed, and because Ueda discloses that the uppermost layer of the multiple-layer-structure metallic layer should be the blackened layer.

Additionally, as was explained to Applicant’s representative during the personal interview, the Office Action asserts that the chromate plating of Ueda corresponds to the claimed density-intensifying layer. However, Applicant respectfully asserts that the chromate plating disclosed in Ueda is used to form one of the multiple metallic layers or the blackened

layer itself and does not provide a layer that corresponds to the claimed density-intensifying layer. As is clearly recited in claim 1, the density-intensifying layer is formed on the blackened layer. Ueda does not disclose, teach or suggest that the chromate plating provides an additional layer that is positioned on the “uppermost” blackened layer.

Ueda discloses that the metallic layer may be formed on a geometric pattern by plating, which may be electroplating, electroless plating, or a combination of both. Ueda, paragraph [0034]. Ueda also discloses that it is effective for “making a variation in thickness of metallic layer small that thin metallic layer is further plated using electroplating after covering thin metallic layer on the geometric patter using electroless plating.” Ueda, paragraph [0034], lines 44-45. Thus, Ueda merely discloses that to keep variations in thickness of the metallic layer small, an electroplating step should follow an electroless plating step. However, this disclosure of Ueda does not teach or suggest that any layer should be formed over the blackened layer. Rather, it merely discloses that if the metallic layer is a structure comprising a plurality of layers, the above steps should be utilized to keep variations in the thickness of the metallic layer low.

Further, Ueda discloses, “When forming the uppermost layer as a black colored layer, black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum, should be applied for the formation of the black colored layer.” Ueda, paragraph [0034], lines 46-48 (emphasis added). Thus, Ueda merely discloses that chromate plating, or a number of other methods, may be used to form the blackened layer itself. However, Ueda does not teach or suggest that after the blackened layer is formed, an additional step of chromate plating should be applied to form a density-intensifying layer over the blackened layer. Rather, Ueda only discloses that chromate plating may be used to form “the uppermost layer as a black colored layer.”

Ueda, paragraph [0034]. Thus, Ueda fails to teach or suggest that a density-intensifying layer can or should be formed on the blackened layer as is recited in claim 1.

Furthermore, the Office Action applies Miyake as allegedly disclosing that Cu-Co alloys can be used as an electromagnetic wave shielding material and, thus, the Office Action asserts it would have been obvious to have replaced the copper of Ueda with the Cu-Co alloy of Miyake. However, Miyake is not applied to address the above discrepancies of Ueda as to claim 1. Therefore, for at least the reasons stated above, Ueda and Miyake, individually or in combination, fail to teach or suggest each and every feature of claim 1.

Additionally, regarding the Miyake reference, Applicants respectfully assert that it would not have been obvious to one of ordinary skill in the art to have combined the disclosures of Ueda and Miyake as suggested in the Office Action at least because neither the Ueda nor the Miyake reference teach or suggest that the Cu-Co alloy disclosed in Miyake can or should be used as a blackened layer.

The Office Action asserts that it would have been obvious for one of ordinary skill in the art to have modified the Ueda reference to have a Cu-Co alloy in place of the copper metallic layer. Miyake discloses that “[i]f the amount of Co contained is below 0.01 wt%, the effect of improvement of corrosion resistance is not identified. If the amount of Co contained exceeds 1.0 wt%, the effect in improvement of corrosion resistance saturates whereas the electrical conductivity deteriorates.” Miyake, English translation, page 3, line 21-page 4, line 3. Thus, the Miyake reference is directed to a copper alloy as an electromagnetic wave shielding material that has high corrosion resistance and high electrical conductivity.

However, claim 1 clearly recites that the blackened layer is formed of a Cu-Co alloy. Thus, the Cu-Co alloy particles in the claimed invention are deposited onto the metal layer and then subjected to a blackening treatment. Specification, pages 12-14. The instant specification recites that the blackening treatment may be, for example, exposure to steam or

chemicals such as nitric acid. Specification, page 12, lines 26-34. Therefore, if the Cu-Co alloy particles are formulated to be resistant to corrosion, as is disclosed in the Miyake reference, it will become more difficult to perform an effective blackening treatment and, thus, it will be more difficult to form the blackened layer of Cu-Co alloy particles. Therefore, because the Cu-Co alloy of Miyake is disclosed to have improved corrosion resistance and conductivity, and because neither the Ueda nor the Miyake references teach or suggest that the Cu-Co alloy disclosed in Miyake can or should be used as a blackened layer, neither Ueda nor Miyake provide any reason or rationale for one of ordinary skill in the art to have replaced the copper of Ueda with the Cu-Co alloy of Miyake and then to use the Cu-Co alloy to form a blackened layer. Thus, neither Ueda nor Miyake, individually or in combination, teach or suggest that a Cu-Co alloy should be used as a blackening layer.

Finally, regarding new claim 11, the density intensifying layer of the claimed invention has a thickness from about 0.001 to about 0.1 μm . Neither Ueda nor Miyake teach or suggest such a feature. Ueda discloses, "The thickness of the metallic layer is usually 50 μm or less ... and usually not less than about 0.1 μm ." Ueda, paragraph [0033], lines 37-39. Thus, Ueda discloses that the metallic layer is not less than the maximum of the claimed range for the density-intensifying layer. Applicants assert that even though the maximum of the claimed range may be within the "about 0.1 μm " minimum disclosed in Ueda, the maximum thickness of 50 μm disclosed in Ueda is 500 times larger than the maximum of the claimed density-intensifying layer and, thus, Ueda does not teach or suggest an ultra-thin density-intensifying layer that is formed over a blackened layer as recited in new claim 11. Further, Miyake does not disclose any metallic layer and, thus, Miyake fails to address the discrepancy of Ueda as to claim 11.

For at least the reasons stated above, claim 1 would not have been rendered obvious by Ueda and Miyake, individually or in combination. Claims 4 and 6-8 variously depend from claim 1 and, thus, also would not have been rendered obvious by Ueda and Miyake, individually or in combination. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Ueda, Miyake and Kadokura

The Office Action rejects claim 3 under 35 U.S.C. §103(a) over Ueda and Miyake as applied to claim 1 above, and further in view of U.S. Patent No. 5,158,657 to Kadokura et al. (“Kadokura”). Applicants respectfully traverse the rejection.

For at least the reasons stated above, Ueda and Miyake fail to teach or suggest each and every feature of claim 1. Further, the Office Action applies Kadokura to disclose a conductive film with powder comprising Cu and Co with particle sizes from 0.05 to 1 micron. Thus, Kadokura is not applied to address the discrepancies of Ueda and Miyake as to claim 1. Therefore, Ueda, Miyake and Kadokura, individually or in combination, fail to teach or suggest each and every feature of claim 1.

Claim 1 would not have been rendered obvious by Ueda, Miyake and Kadokura, individually or in combination. Claim 3 depends from claim 1 and, thus, also would not have been rendered obvious by Ueda, Miyake and Kadokura, individually or in combination. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. New Claim

By this Amendment, new claim 11 is presented. New claim 11 depends from claim 1 and, thus, distinguish over the applied references for at least the reasons discussed above with respect to claim 1, as well as for the additional features that it recites. Prompt examination and allowance of new claim 11 is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Petition for Extension of Time

Date: January 12, 2009

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